STUDY ON MICROBIAL FUEL CELLS OPERATED BY MONO- AND MULTI CULTURES

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Microbial fuel cells (MFCs) are attractive for sustainable production of energy from biodegradable materials. MFCs can be operated by electrochemically active strains either in pure and mixed cultures. In this work it was aimed to study and compare the efficiency of mono- and multicultural two-chamber MFCs. The fuel cell had 240 ml anode and cathode chamber volumes, in the anode and cathode cells graphite and graphite electrode shot by platinum was used, respectively. The two chambers were separated by a Nafion® 0125 type proton selective membrane. The fuel cell was placed in a biothermos in order to keep it at the desired temperature. Performance of the MFCs were determined as electrical power (P=VxI) calculated from the measured voltage (V) and the current (I=V/R) calculated by the known resistance (R) built in the circuit. The voltage transmitted by the cell was recorded by a computerized data acquisition system rely on LabView 8.5. For pure- and mixed cultural experiments *Shewanella putrefaciens* strain and sludge from a biogas plant were used, respectively.